

Massachusetts Institute of Technology
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Luminary Memo #69

TO: Distribution
FROM: Craig Work
DATE: 10 March 1969
SUBJECT: LUMINARY 1A edits for DAP and for
Powered Descent
Reference: Sundance Memo #87, 3 January 1969, Craig Work

A new DAP edit package for Luminary 1A has been released for general use. The single special request card "TEDIT LUMDAP" will generate the necessary dumps and the edit execution as well. "INSERT LUMDAP" will dump the needed information on the marsrot, leaving the edit step for a later run. This edit package is designed for LUMINARY from Revision 81 forward.

This new package runs very fast and produces a more compact output than its predecessors. Intended to serve for LEVEL 5 and LEVEL 6 testing, this package will run for extremely long simulations and for multiple burns. Included in its outputs are:

- 1) The DAP estimate of attitude error, angular rate, and angular acceleration at 0.1 second intervals.
- 2) Complete jet firing edit, listing all jet firings, their times, and their durations.
- 3) Trim gimbal edit whenever Q, R axes attitudes are under GTS control, every 0.2 seconds.
- 4) RCS fuel consumption statements.

In powered flight (APS or DPS burns), plots show:

- 1) Cross-axis velocity history.
- 2) Filtered thrust-axis estimate.
- 3) Attitude errors.

Additionally, each burn is summarized in a 3-line print-out describing the requested delta-V, the post-burn delta-V error, the post-terminal maneuver delta-V error, the burn time, and the pointing error (angle between the requested and achieved delta-V vectors).

Further information on print and plot options available from C. Work, ext 1-570 and E. Jones, ext. 1-571.